



## TECHNOLOGICAL PEDAGOGICAL AND CONTENT KNOWLEDGE (TPACK) BASED LANGUAGE IMMERSION AS A NEW TREND IN ARABIC LANGUAGE LEARNING AT INDONESIAN PESANTREN

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### **Abstract**

*The rapid development of information technology demands adjustments to established pedagogical models, particularly in language acquisition environments such as Islamic boarding schools (pesantren). This study aims to investigate the implementation model and efficacy of the Technological Pedagogical and Content Knowledge framework in enhancing the culture of active, 24-hour Arabic language immersion that characterises Islamic boarding schools (pesantren) in Indonesia. This study uses a qualitative case study design, collecting extensive data through semi-structured interviews with teachers and students based on the TPACK construct, non-participant observation of formal instructional activities and informal digital use by students and non-teaching students, and analysis of curriculum documents. The findings confirm that although teachers' competencies in traditional Content Knowledge (CK) and Pedagogical Knowledge (PK) are high, effective technology integration (Technological Pedagogical Knowledge, TPK) remains inconsistent, often limited to introductory presentation tools. However, successful TPACK applications are identified when technologies such as authentic video platforms (e.g., istimā' or kalām learning utilising Al Jazeera channels) and narrative creation applications are strategically employed to facilitate functional communication, ensuring contextual expansion of L2 use beyond the formal classroom. In conclusion, the implementation of TPACK aligns traditional language learning methods with modern technology, thereby significantly increasing students' engagement and productive Arabic language skills.*

**Keywords:** *Technological Pedagogical Content Knowledge (TPACK), Language Immersion, Arabic Language Acquisition, Pesantren, Digital Pedagogy.*

### **Abstrak**

Pesatnya perkembangan teknologi informasi menuntut penyesuaian model pedagogis yang telah mapan, terutama dalam lingkungan pemerolehan bahasa seperti pondok pesantren. Penelitian ini bertujuan untuk menginvestigasi model implementasi dan efikasi kerangka kerja Technological Pedagogical and Content Knowledge dalam meningkatkan budaya immersi Bahasa Arab aktif setiap hari dalam 24 jam yang menjadi ciri khas Pesantren di Indonesia. Penelitian ini menggunakan desain studi kasus kualitatif, mengumpulkan data ekstensif melalui wawancara semi-terstruktur kepada pengajar dan santri yang berlandaskan konstruk TPACK, observasi non-partisipan terhadap aktivitas instruksional formal dan penggunaan digital informal oleh santri dan musyrif, serta analisis dokumen kurikulum. Hasil temuan mengkonfirmasi bahwa meskipun kompetensi guru dalam Content Knowledge (CK) dan Pedagogical Knowledge (PK) tradisional tinggi, integrasi teknologi yang efektif (Technological Pedagogical Knowledge, TPK) masih belum konsisten, seringkali terbatas pada alat presentasi dasar. Namun, aplikasi TPACK yang berhasil teridentifikasi ketika teknologi seperti platform video otentik (misalnya, pembelajaran *istimā'* atau *kalām* dengan memanfaatkan kanal AlJazeera) dan aplikasi pembuatan narasi dimanfaatkan secara strategis untuk memfasilitasi komunikasi fungsional, memastikan penggunaan L2 meluas secara kontekstual di luar kelas formal. Kesimpulannya, penerapan TPACK menyelaraskan metode pembelajaran bahasa tradisional dengan teknologi modern, sehingga meningkatkan keaktifan dan kemampuan bahasa Arab produktif santri secara nyata.

**Kata Kunci:** *Technological Pedagogical Content Knowledge (TPACK), Language Immersion, Arabic Language Acquisition, Pesantren, Digital Pedagogy.*

## **INTRODUCTION**

Arabic language studies occupy a critical position within the Indonesian Islamic educational system. As the language of religious texts and the standard medium for Islamic scholarship, Arabic is essential for a profound understanding of the faith and for participation in global Islamic intellectual discourse. Consequently, the centrality of the Pesantren (Islamic boarding school) has underscored its significance as a primary catalyst for sophisticated Arabic language instruction. This is particularly evident in modern establishments utilising structured curricula, such as the *Kulliyatul Muallimin Islamiyah* (KMI), which prioritise linguistic mastery alongside religious literacy.<sup>1</sup>

Inherently, the Pesantren system provides a potent and mandatory total language immersion experience, operating in a manner analogous to an authentic Second Language Acquisition (SLA) laboratory. The quotidian experiences within this environment ranging from informal conversations in residential halls to engagement in varied social contexts necessitate the continuous application of the second language (L2). Language immersion, defined as the acquisition of language through

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<sup>1</sup> Nurdin Bambang Irawan, "Peran Pondok Pesantren Modern dalam Mengembangkan Bahasa Arab," *Edukasi Islami: Jurnal Pendidikan Islam* 10, no. 1 (2021): 651-660, <https://doi.org/10.30868/ei.v10i01.2899>.

practical usage rather than mere theoretical study, fosters communicative competence through consistent exposure. Empirical studies confirm that such natural settings significantly accelerate language learning, resulting in marked improvements in speaking (*Mahārah Kalām*), listening (*Mahārah Istimāʿ*), reading (*Mahārah Qirāʿah*), and writing (*Mahārah Kitābah*).<sup>2</sup>

However, the efficacy of this traditional immersion model faces significant challenges in the wake of the 21st century and the emergence of Society 5.0. Contemporary graduates require more linguistic proficiency; they demand comprehensive digital literacy. This encompasses the capacity to navigate digital ecosystems, utilise advanced learning platforms, and engage with artificial intelligence. While Pesantren culture effectively promotes L2 communication in physical spaces, integrating technology without eroding the core principle of immersion presents a complex pedagogical dilemma. Consequently, it is imperative to investigate how digital media can facilitate, rather than obstruct, the continuous advancement of second language acquisition. To address this, the Technological Pedagogical and Content Knowledge (TPACK) framework offers a paramount theoretical lens.<sup>3</sup>

The TPACK framework provides a construct for analysing the pedagogical challenges emerging from technological integration. Mishra and Koehler posit that successful integration requires a dynamic interplay among three core domains: Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK).<sup>4</sup> The framework argues that TK alone is insufficient; proficient educators require integrated expertise, including Technological Pedagogical Knowledge (TPK), the application of technology to instructional methods and Technological Content Knowledge (TCK), which pertains to how technology transforms the representation of subject matter.<sup>5</sup> In the context of Arabic instruction, TPACK-based initiatives have been shown to enhance instructional competencies and optimise digital resources to target specific language skills, particularly in increasing engagement for speaking and listening activities.<sup>6</sup>

<sup>2</sup> Humaedi, and Yuyun Rohmatul Uyuni, “Peran Musyrif Dalam Membangun Lingkungan Berbahasa Di Pondok Pesantren Riyadhussholihiiin Kabupaten Pandeglang,” *Akademik : Jurnal Mahasiswa Humanis* 5, no. 2 (2025): 1054–66.

<sup>3</sup> Asmahan Masry-Herzallah, “TPACK, Technological Self-Efficacy, Gender, and Online Teaching Effectiveness: Insights from the COVID-19 Crisis,” *Humanities and Social Sciences Communications* 12, no. 1 (December 1, 2025): 1-9, <https://doi.org/10.1057/s41599-025-04546-z>.

<sup>4</sup> Mark Hofer, Lynn Bell, and Glen L. Bull, *Practitioner’s Guide to Technology, Pedagogy, and Content Knowledge (TPACK): Rich Media Cases of Teacher Knowledge* (Waynesville, USA: Association for the Advancement of Computing in Education, 2015), 74.

<sup>5</sup> Matthew Koehler and Punya Mishra, “What Is Technological Pedagogical Content Knowledge?,” *LearnTechLib: The Learning and Technology Library* 9, no. 1 (2009): 60–70.

<sup>6</sup> Rifda Haniefah and Mohamad Samsudin, “Penerapan Technological Pedagogical and Content Knowledge (TPACK) Dalam Pengajaran Keterampilan Berbahasa Arab,” *Ta’limi | Journal of Arabic Education and Arabic Studies* 2, no. 1 (May 24, 2023): 61–72, <https://doi.org/10.53038/TLMI.V2I1.62>.

Despite the documented positive impact of TPACK in formal settings, such as Madrasahs, a significant research gap exists regarding its application within the unique ecosystem of pesantrens. Existing literature reveals a consistent pattern: while many Indonesian educators possess strong Content Knowledge (CK) and Pedagogical Knowledge (PK), they struggle to navigate the intricate interplay between these domains and technology, resulting in insufficient Technological Pedagogical Knowledge (TPK).<sup>7</sup>

Crucially, standard TPACK applications often overlook the unique constraints of total immersion environments.<sup>8</sup> This study argues that in Pesantren, the environment is not merely a background variable but a distinct knowledge domain.<sup>9</sup> Therefore, this research introduces Contextual Knowledge (CK) as a critical adaptation and conceptual extension of the standard TPACK framework. While Mishra and Koehler acknowledge "context" as the outer circle bounding the TPACK framework, this study elevates Contextual Knowledge to a primary domain equal in weight to CK, PK, and TK. In the Pesantren, Contextual Knowledge represents the mastery of the institution's unique socio-cultural rules, specifically the strict enforcement of L2 communication in informal settings. Without this specific Contextual Knowledge, technological integration risks becoming intrusive, potentially disrupting the delicate balance of the immersion environment.<sup>10</sup>

The primary deficiency in current scholarly literature is the lack of a framework that digitises the immersive cultural practices of the Pesantren without violating its traditional linguistic rules. There is limited understanding of how to leverage technology to support, rather than distract from, the "24-hour Arabic-only" rule.<sup>11</sup>

To address this gap, this study aims to develop a model that strategically leverages technology to augment the existing immersive learning environment. Accordingly, this research is guided by the following objectives: a. To evaluate the current level of Technological Pedagogical Content Knowledge (TPACK) among educators in immersion-based Islamic boarding schools; b. To analyse the role of Contextual Knowledge (CK) as a mediating variable in the successful integration of technology within a total immersion environment; c. To formulate a specific TPACK framework

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<sup>7</sup> Prayoga Saputra, Apri Wardana Ritonga, and Uril Bahrudin, "Pendekatan Technological Pedagogical Content Knowledge (TPACK) Dalam Pembelajaran Bahasa Arab Di MAN 2 Payakumbuh," *Shibghoh: Prosiding Ilmu Kependidikan UNIDA Gontor* (2023): 550-561, <https://ejournal.unida.gontor.ac.id/index.php/shibghoh/article/view/11016>.

<sup>8</sup> Raid Mustofa Abdurrahim, *al-Ingimās al-Lugawiy fi Ta'lim al-Lughah al-'Arabiyyah li al-Nāṭiqīna bi gairiha* (Riyadh: Majma' al-Mulk Salman al-'Ālamīy li Al-Lughah al-'Arabiyyah, 1445), 30.

<sup>9</sup> Muhamad Fuad Hasim et al., "Technological Pedagogical Content Knowledge (TPACK) Approach In Arabic Language Learning At Madrasah Miftahul Afkar," *Al Mi'yar: Jurnal Ilmiah Pembelajaran Bahasa Arab dan Kebahasaaraban* 8, no. 1 (2025): 104–113.

<sup>10</sup> Saputra, "Pendekatan Technological Pedagogical Content Knowledge (TPACK)."

<sup>11</sup> Aulia Rahman, "Peran Lingkungan Bahasa Arab Dalam Meningkatkan Penguasaan Bahasa Arab Pada Pesantren Izzur Risalah Panyabungan," *Prosiding Konferensi Nasional I Hasil Pengabdian Masyarakat* 1, no. 1 (2021): 83–92.

that digitises Pesantren immersive practices, ensuring that digital communication tools enhance, rather than diminish, the practical utilisation of the Arabic language.

## METHOD

To comprehensively explore the complex and context-specific educational phenomena within Islamic boarding schools (pesantren), this research employed a qualitative case study approach.<sup>12</sup> This methodological choice was deliberate, designed to facilitate an in-depth analysis of contextual dynamics, particularly Contextual Knowledge (CK), within the institution, rather than simply evaluating competencies. The case study design was well-suited for this research because it allowed for the examination of "how" and "why" questions regarding the interaction between pedagogical strategies, student perspectives, and institutional policies regarding digital media. This approach was crucial for understanding how the various domains of the TPACK framework interact within the unique and highly regulated cultural environment of a mandatory language immersion program.<sup>13</sup>

This research was conducted at Pesantren Modern Tazakka Batang, a leading institution known for its rigorous Arabic immersion program integrated into the *Kulliyatul Muallimin Islamiyah* (KMI) curriculum. This location was chosen due to its successful, albeit complex, integration of digital infrastructure alongside strict traditional linguistic policies.

The study involved approximately 40 participants, selected using purposive sampling techniques to ensure diverse representation across the educational hierarchy. The participants included:

- a. *Mudarris* (Arabic Language Teachers) (approximately 8): Selected based on a minimum of 2 years of teaching experience. They provided perspectives on structured classroom instruction, specifically focusing on Content Knowledge (CK) and Pedagogical Knowledge (PK).
- b. *Musyrif/Mudabbir* (Language Supervisors) (approximately 5): Selected for their role in enforcing language discipline in the dormitories. They provided important insights into the implementation of the Second Language (L2) policy and the application of technology in non-formal settings (TPK).

<sup>12</sup> Pär Åhlström, "Presenting Qualitative Research: Convincing through Illustrating the Analysis Process," *Journal of Purchasing and Supply Management* 13, no. 3 (May 2007): 216–218, <https://doi.org/10.1016/J.PURSUP.2007.09.008>.

<sup>13</sup> Britta Gammelgaard, "Editorial: The Qualitative Case Study," *The International Journal of Logistics Management* 28, no. 4 (November 13, 2017): 910–13, <https://doi.org/10.1108/IJLM-09-2017-0231>.

c. *Santri* (Students) (approximately 25): Selected from senior levels to ensure they had sufficient exposure to the curriculum. As primary end-users, they provided in-depth insights into engagement factors and the effectiveness of technology-enhanced immersive activities.

Data collection was conducted over a four-month period, from August to November 2025. The process utilised three main instruments to ensure depth and rigour: a. Semi-structured interviews were conducted with all key informants. The interview protocol was developed based on established TPACK domain criteria, specifically investigating knowledge of Arabic language learning applications (TK), methods for diagnosing L2 errors using technology (TPK), and criteria for selecting authentic digital materials (TCK); b. Observation: Direct observations were conducted systematically in both structured and unstructured environments. Structured observations focused on classroom settings to evaluate the integration of digital media (e.g., projectors, instructional videos) into lesson plans. Importantly, non-participant observations were conducted in residential facilities and communal spaces to examine the informal use of mobile devices by students and supervisors. This was crucial for assessing the expansion of a culture of digital immersion (Contextual Knowledge); c. Documentation: The audit included a comprehensive evaluation of official documents, including institutional curriculum frameworks, internal discipline reports, pedagogical plans, and digital archives of teaching resources used by educators.

The collected qualitative data underwent a rigorous process of data reduction, data display, and conclusion drawing/verification.<sup>14</sup> The initial phase involved categorising the findings according to the nine sub-constructs of the modified TPACK framework, with a particular emphasis on unique Contextual Knowledge (CK) associated with immersion culture. Thematic coding was then used to identify recurring patterns in digital practices and skills.

To ensure the validity and trustworthiness of the findings, rigorous methodological triangulation was applied.<sup>15</sup> Data obtained from interviews were cross-correlated with observational field notes and institutional documents. For example, teachers' self-efficacy in using digital tools (TPK) was verified against actual classroom observations and student feedback. This triangulation process confirmed consistency of views among key informants and clarified the causal relationship between TPACK strategies and immersion outcomes.

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<sup>14</sup> A. Michael Huberman and Matthew B. Miles, "Drawing Valid Meaning from Qualitative Data: Some Techniques of Data Reduction and Display," *Quality & Quantity* 17, no. 4 (August 1983): 281–339, <https://doi.org/10.1007/BF00167541/METRICS>.

<sup>15</sup> Sylvester Donkoh and John Mensah "Application of triangulation in qualitative research," *Journal of Applied Biotechnology and Bioengineering* 10, no. 1 (2023): 6-9, <https://doi.org/10.15406/jabb.2023.10.00319>.

## RESULT AND DISCUSSION

### Contextual Profile and TPACK Gaps in Pesantren Implementation

The initial analysis of teacher and supervisor competencies revealed a significant dichotomy: strong traditional knowledge, alongside difficulties in integrating technological applications.

#### *High Content and Pedagogical Confidence*

The *Mudarris* and *Musyrif* showed a strong understanding of Arabic linguistics, morphology, and semantics. This knowledge is essential for them to teach effectively.<sup>16</sup> Likewise, their Pedagogical Knowledge (PK) related to traditional second language (L2) teaching methods, such as *sam'iyah-bashariyyah* (audio-visual) and *muhādathah* (conversation), showed significant growth.<sup>17</sup> This solid base ensures the content and teaching methods (P and C) are built on a sound academic footing.<sup>18</sup>

#### *Low Integrated Application Capacity*

Despite this strong foundation, the main obstacle to modernising the immersion program was identified as the ability to integrate technology effectively. This synthesis was marked by the collaborative implementation of Technological Pedagogical Knowledge (TPK) in conjunction with Technological Content Knowledge (TCK). Informants reported that using new technologies often led to logistical issues and technical problems, and a return to familiar, simpler tools, which indicated a tendency to avoid risk. This finding supports the broader observation that many Indonesian educators, despite having a basic understanding of technology, struggle to meet the complex interactive requirements of effectively using TPACK.<sup>19</sup>

The most common use of technology was limited to basic delivery methods, such as displaying digital text or playing pre-recorded videos using projectors and simple presentation software. This suggests that technological knowledge (TK) is often used superficially, failing to fully utilise technology to encourage meaningful student engagement or to help develop second language (L2) skills. Limiting the parameters of technological knowledge (TK) exclusively to activities associated with presentations undermines both technological pedagogical knowledge

<sup>16</sup> Abd Rozak, Pia Khoirotnun Nisa, and Azkia Muharom Albantani, "Ideal TPACK For Arabic Language Lecturer: Student Voices," *Ijaz Arabi Journal of Arabic Learning* 7, no. 2 (2024): 776–787.

<sup>17</sup> Ana Mualimah, Fachrul Ghazi, and Ahmad Sodik, "Literatur Riview : Technological Pedagogical and Content Knowledge (TPACK) dalam Pengajaran Keterampilan Bahasa Arab ," *Jurnal Pendidikan Indonesia* 6, no. 1 (2025): 421–29.

<sup>18</sup> Shofwan Sholahudin, Yayan Nurbayan, and Mad Ali, "The Competence of Arabic Language Teachers in The Digital Era: A Study Based on The Technological Pedagogical Content Knowledge (TPACK) Framework," *Dinasti International Journal of Education Management And Social Science* 6, no. 3 (2025): 2055–65, <https://doi.org/10.38035/dijemss.v6i3.3940>.

<sup>19</sup> Sholahudin, "The Competence of Arabic Language Teachers," 2060 .

(TPK) and technological content knowledge (TCK). This restriction prevents technology from fully supporting an immersive learning environment.

The following table summarises the observed knowledge domains relative to the specific immersion context:

Table 1: Comparison of Teacher Knowledge Domains in Pesantren Immersion

Knowledge Domain	Self-Reported Competence	Observed Application in Immersion	Implication for TPACK Efficacy
Content Knowledge (CK)	High <sup>20</sup>	Used to vet the quality and authenticity of digital content	Provides a robust theoretical base
Pedagogical Knowledge (PK)	High <sup>3</sup>	Often constrained by traditional instructional methods	Requires TPK support for 21st-century methodology
Technological Knowledge (TK)	Adequate (Basic Software: YouTube) <sup>21</sup> (Basic PPT,	Limited to projection and one-way presentation <sup>22</sup>	High risk of superficial technology adoption
TPCK (Integrated Knowledge)	Low/Developing	Successful only in targeted L2 skill reinforcement	The critical challenge point for digitalising immersion

### The Functional TPACK Model in Arabic Language Skills

The systematic observation, particularly of successful exceptions, facilitated the development of an effective functional TPACK model that addresses the needs of immersion education by emphasising productive skills. These successful cases demonstrate a strong integration of TPK and TCK, ensuring that technology directly supports the pedagogical goal of ongoing, meaningful L2 use.

#### a. Enhancing Speaking (*Mahārah Kalām*) through TPK and TCK

A noteworthy discovery related to improving skills involved the strategic use of real online media. To improve *Mahārah Kalām*, or speaking skills, some *Mudarrisah* used a teaching method that combined current events with structured digital activities.<sup>23</sup>

<sup>20</sup> Rozak, Nisa, and Albantani, "Ideal TPACK For Arabic Language Lecturer : Student Voices," 780.

<sup>21</sup> Hasim et al., "Technological Pedagogical Content Knowledge (TPACK)," 110.

<sup>22</sup> Hasim et al., "Technological Pedagogical Content Knowledge (TPACK)," 107.

<sup>23</sup> Laili Mas Uliyah Hasan, "Studi Implementasi dan Efektivitas TPACK dalam Pembelajaran Maharah Kalam," *Mumtaza: Journal of Arabic Teaching, Arabic Linguistic, and Literature* 3, no. 1 (2023): 91-101, <https://ejournal.stibada.ac.id/index.php/mumtaza/article/view/60>.

- 1) Implementation involved nudging students toward authentic, real-time Arabic content platforms. The focus was on those tailored for L2 learners, like learning.aljazeera.net, which provided top-notch, genuine subject matter (TCK). Following this, structured discussions, known as *muhādthathah* and *munāqasyah*, were held using digital platforms like video conferencing tools or controlled online class forums.<sup>24</sup>
- 2) Analysis: This demonstrates a strong understanding of Technological Pedagogical Knowledge (TPK). The technology is used intentionally to support cooperative learning methods, rather than just for delivering content. Using authentic, current affairs content (TCK) is crucial because it shifts the teaching focus from scripted, artificial conversations to spontaneous, practical discussions in the second language. This unequivocally bolsters the fundamental concept of immersion: employing language as a medium for efficacious communication.

b. Reinforcing Listening (*Mahārah Istimā'*) and Writing (*Kitābah*)

Effective TPACK implementation also extends to receptive and other productive skills by harnessing the creative potential of mobile technology.

- 1) Implementation: Students were assigned the responsibility of developing narrative content utilizing accessible narrative applications, including Plotagon or comparable mobile software. These assignments required the use of culturally specific vocabulary (CK) in L2 scenarios and involved collaborative scriptwriting (*Kitābah*). The final output, presented digitally, then served as auditory input (*Istimā'*) for other groups.
- 2) The integration of technology facilitates the development of interactive and contextually pertinent educational resources, presenting a more stimulating alternative to conventional assignments such as transcription or grammatical drills. This approach sparks student enthusiasm, transforming learners into creators of L2 content rather than just passive recipients. It additionally integrates cultural practices associated with a second language (L2) with competencies in digital production, thereby significantly enhancing the immersive experience within the domain of digital content generation.

### TPACK as the Digital Catalyst for Immersion

The connection between the TPACK framework and the unique teaching environment of the Pesantren shows that TPACK is more than just a way to measure teacher skills. It serves as a

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<sup>24</sup> Hasan, " Studi Implementasi dan Efektivitas TPACK," 97.

foundational structure for institutional uniformity, thereby facilitating the successful implementation of the L2 immersion policy in the contemporary digital landscape.

a. Digitalizing Functional Communication

The primary conclusion derived from this research indicates that the efficacious TPACK framework significantly facilitates the digital transformation of functional L2 communication. When the process of acquiring a second language (L2) is integrated with proactive digital production and authentic engagement with the real world, the outcomes of immersion transcend basic language understanding. This approach leads to strong digital production skills.<sup>25</sup> Students reported that these activities, which integrated TPACK, better prepared them for using a second language (L2) outside of school. This suggests that TPACK promotes biculturalism, along with bilingualism, by incorporating L2 cultural norms into digital methods.<sup>26</sup>

Moreover, using digital tools enhances the process of operational language monitoring (*Musyrif*). The TPACK tool enables *Musyrif* to streamline the evaluation of second language (L2) usage, offering immediate digital feedback that can be easily scaled. This change strengthens the implementation of the 24-hour daily immersion regime, which has historically relied heavily on intensive human monitoring and supervision.<sup>27</sup>

b. Causal Mechanisms of Success

The success of TPACK applications is supported by two key mechanisms that are inherent in the structure of the TPACK framework.

*First*, the TPACK framework confronts the significant obstacle of educators who are hesitant to adopt risk-taking behaviours. TPACK, by providing a framework for incorporating technology, strengthens pedagogical confidence (TPK).<sup>28</sup> Teachers understand that the effectiveness of technology in the classroom depends on sound instructional design (PK), rather than just knowing how to use the technology (TK). This systematic approach reduces the perceived risk of failing in the classroom, which encourages continued technological experimentation.

*Second*, the Technological Content Knowledge (TCK) component of TPACK helps to ensure that the learning experience is both authentic and relevant to the specific context.<sup>29</sup> When educators strategically select technological tools that correspond with content goals mirroring authentic second language (L2) application, for instance, by employing mobile app interfaces or

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<sup>25</sup> Hasim et al., "Technological Pedagogical Content Knowledge (TPACK)," 105.

<sup>26</sup> Abdurrahim, *al-Ingimās al-Lugawiy fi Ta'lim al-Lugah al-'Arabiyyah*, 45.

<sup>27</sup> Humaedi, "Peran Musyrif dalam Membangun Lingkungan Berbahasa," 1058.

<sup>28</sup> Hofer, *Practitioner's Guide to Technology, Pedagogy, and Content Knowledge (TPACK)*, 70.

<sup>29</sup> Sholahudin, "The Competence of Arabic Language Teachers," 2050.

social media platforms culturally relevant to Arabic-speaking contexts<sup>30</sup> the integration of technology inherently fosters immersion, thereby avoiding potential disruptions. Thus, the digital environment becomes a seamless, natural extension of the second language (L2) linguistic context.

c. Institutional Policy Alignment and Future Research Direction

The most significant implication of this study concerns how Technological Pedagogical Content Knowledge (TPACK) aligns with institutional policies. A key strength of the pesantren's teaching approach is its institutional policy, which requires the exclusive use of a second language (L2).<sup>31</sup> Successful TPACK implementation signals a strong alignment between technological decisions and the core institutional mission, demonstrating that the chosen tools and methods effectively support that mission. In contrast, technological tools that encourage the separate use of the first language or the passive consumption of second language content actively weaken the immersion policy. Therefore, the highest level of Technological Pedagogical Content Knowledge (TPCK) observed in this setting reflects a curriculum where both digital and physical environments consistently require communication in the second language.

Based on this analysis, several practical recommendations arise.

- 1) Professional development within institutions needs a shift. The focus shouldn't be limited to basic technological know-how. Instead, it should actively cultivate context-specific Technological Pedagogical Knowledge (TPK) tailored for L2 skills. Training programs ought to integrate methodologies for the assimilation of modern technological tools, particularly generative artificial intelligence, to enhance prompt linguistic practice and automated error rectification. This will ensure that *Musyrif* and *Mudarrisah* can effectively utilise these technologies.
- 2) The findings underscore the critical necessity of expanding the conventional framework to TPACK-C, explicitly elevating Contextual Knowledge from a background variable to a governing domain. Unlike secular international contexts where technology often drives pedagogical transformation, this study reveals that in the Pesantren, socio-cultural norms and strict immersion mandates act as decisive gatekeepers. Here, Contextual Knowledge regulates the interplay of Technology, Pedagogy, and Content, ensuring digital tools align with, rather than disrupt, the "24-hour Arabic" rule. Consequently, the TPACK-C

<sup>30</sup> Moh Zulkifli Papatungan and Mohammad Ahsanuddin, "Pengembangan Aplikasi Mobile Untuk Pembelajaran Bahasa Arab Dengan Pendekatan Kontekstual," *Al-Kilmah J. Pendidik. Bhs. Arab dan Hum* 3, no. 1 (2024): 1–15.

<sup>31</sup> Humaedi, "Peran Musyrif dalam Membangun Lingkungan Berbahasa," 1061.

framework offers a superior theoretical lens for explaining effective digital integration in highly regulated, non-Western educational ecosystems.

## CONCLUSION

This study demonstrates that the modernisation of Arabic language immersion in Pesantren necessitates a specific adaptation of the TPACK framework, where Contextual Knowledge acts as the governing domain (TPACK-C). By harmonising Technological Pedagogical Knowledge (TPK) with strict institutional norms, educators successfully extend the traditional "24-hour" immersion mandate into the digital realm, ensuring that technology reinforces rather than erodes linguistic discipline.

The implications of these findings extend well beyond the Indonesian context, offering a vital framework for global language immersion programs situated in culturally or religiously regulated settings. The proposed TPACK-C model suggests that in non-Western or faith-based educational ecosystems, effective digital pedagogy must be "culturally codified" integrating digital tools that respect and digitise existing socio-cultural boundaries. Future scholarship should build upon this theoretical foundation through Research and Development (R&D) to design context-specific TPACK training modules for immersion supervisors. Additionally, longitudinal quantitative inquiries are required to empirically validate the statistical correlation between this culturally grounded digital pedagogy and standardised language proficiency outcomes.

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